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Form 836 (8/00)

Network Analyzer Measurements of SRWM41 and SRPM44

During the most recent maintenance period, section 4 of the PSR was altered to accommodate the transverse feedback experiment. SRWM41 was moved to its new location, and SRPM44 was installed. There are 3/8" heliax cables connected to the upstream and downstream ports on the top and bottom of each device; these cables run up to a patch panel in the REB. The horizontal ports on the devices are flanged, not cabled.

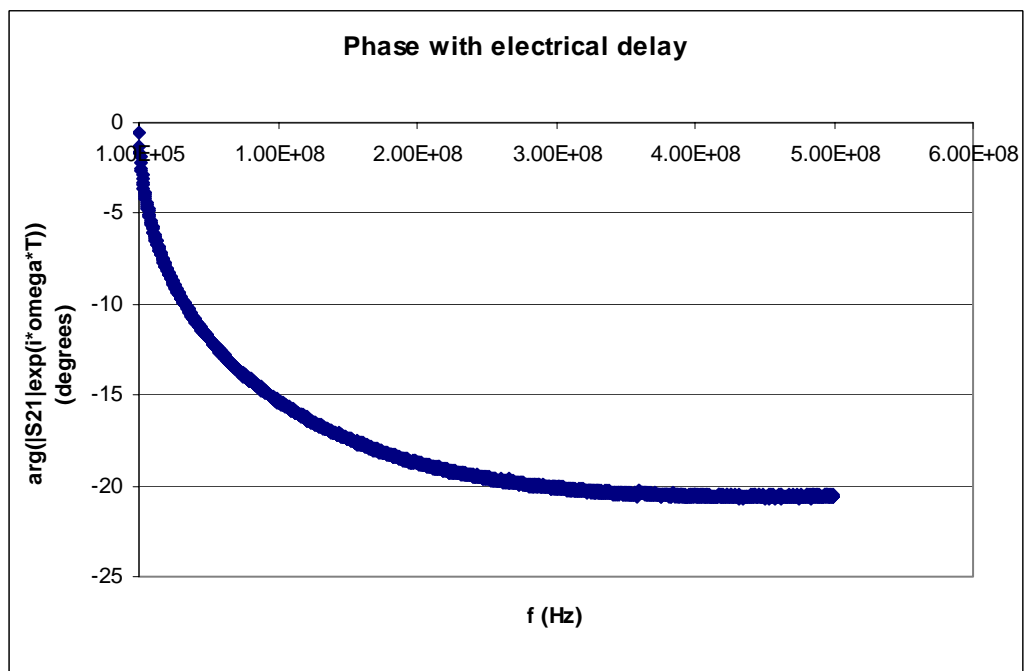
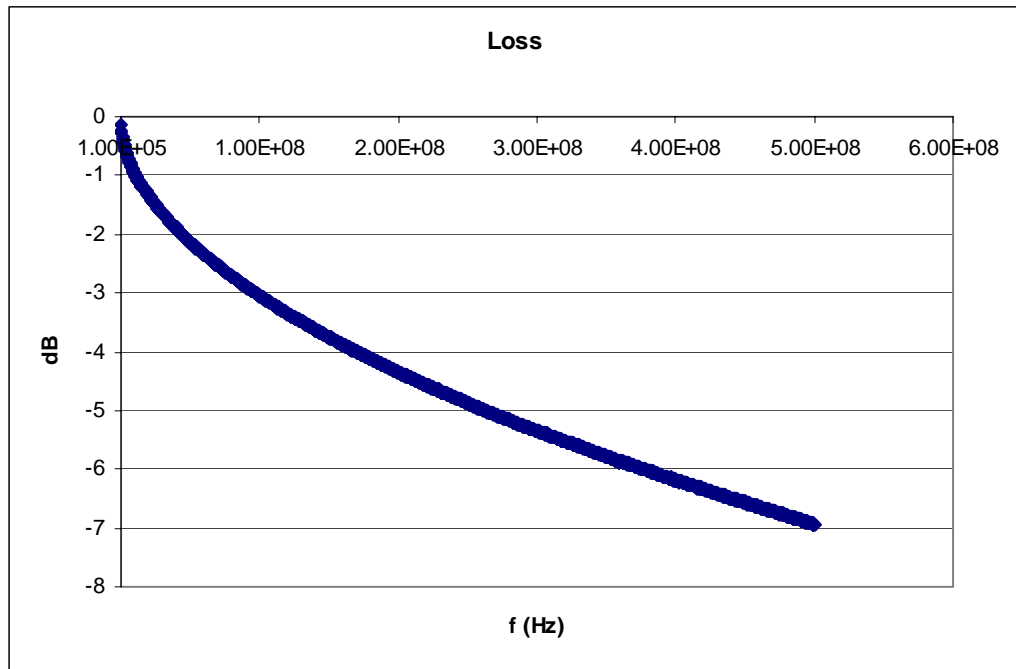
After the installation at the beginning of February, Tom Zaugg and I measured the S-parameters of SRWM41 and SRPM44 with the new cables connected; we used a linear sweep of about 3 seconds from 100 kHz to 500 MHz. Attached are the analyzed results of the S21 measurements for both devices. The standard log mag and phase plots are shown. The third plot accounts for the electrical delay of the cable in the phase: This delay can be measured with the network analyzer, but it is more accurate to calculate it by hand with the formula $(\Delta\omega)T = \Delta\phi$ over the 400-500 MHz range. Then the complex S21 is multiplied by $e^{i\omega T}$, and the argument of this product is plotted in degrees.

The results for WM41 look reasonable as compared with the characterization of the cables already done. The SRPM44 system has a resonance near 400 MHz, which makes it necessary to calculate the electrical delay for PM44 over 100 to 250 MHz. Since PM44 is by no means an ideal device, the results seem reasonable. There is likely an impedance mismatch between the cables and the kicker itself.

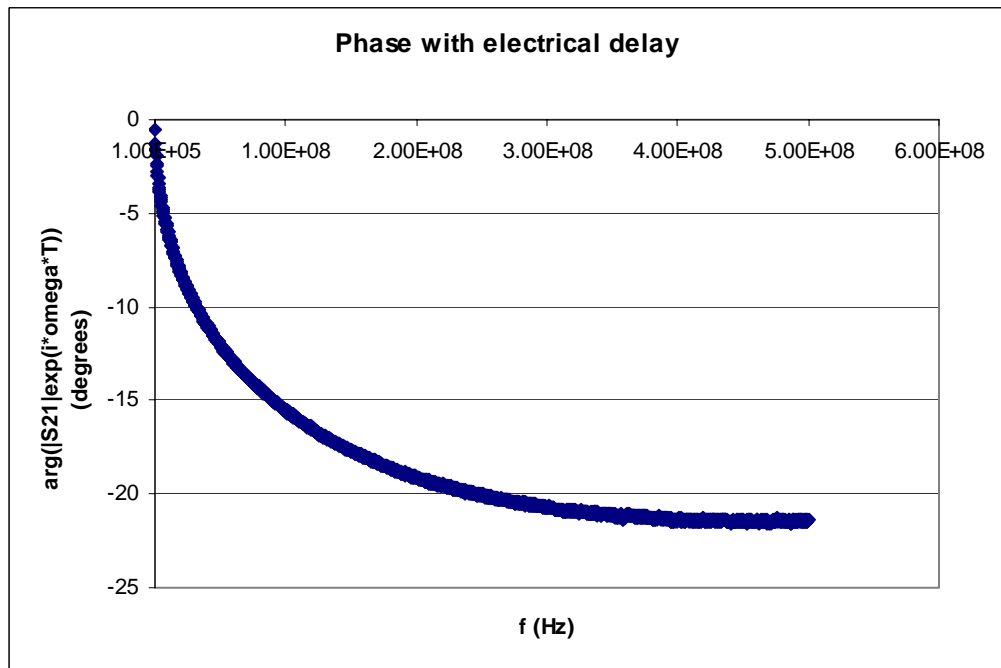
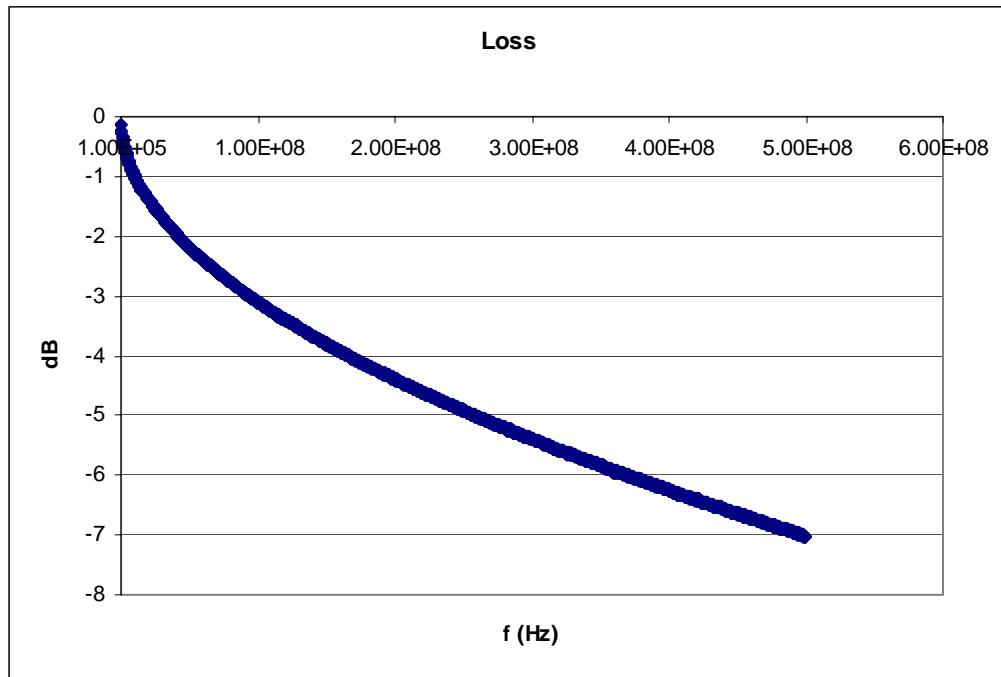
During his visit, Craig Deibele remeasured the devices with the network analyzer and found similar results.

See next pages for results:

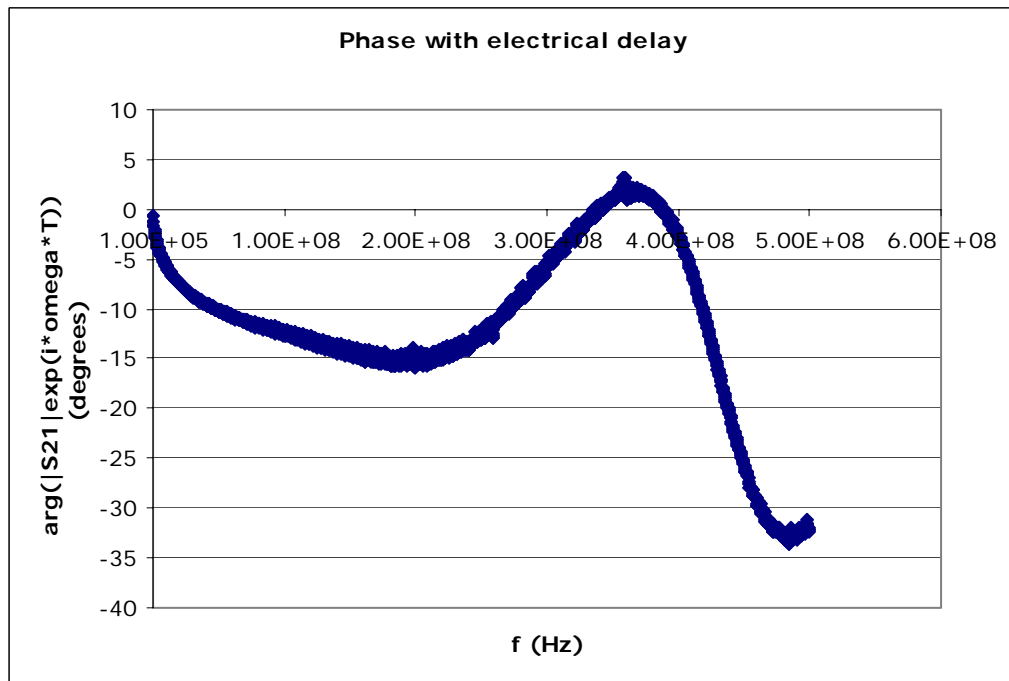
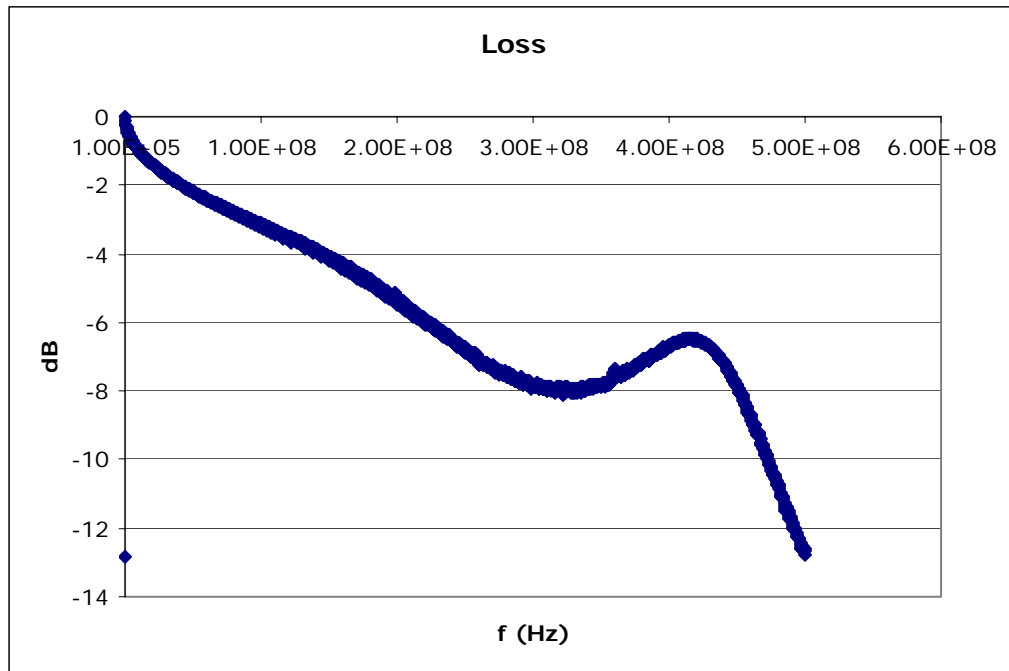
SRWM41 top ports:



SRWM41 bottom ports:



SRPM44 top ports:



SRPM44 bottom ports:

